List of Related Documents

(D1) EP-A 402,973 (PHN 13.241)

(D2) 'A method for the construction of minimum-redundancy codes', by D. A. Huffman in Proc. of the IRE, Vol. 40(10), September 1952.

(D3) 'An introduction to arithmetic coding' by G. G. Langdon, IBM J. Res. Develop., Vol. 28(2), March 1984.

(D4) 'A universal algorithm for sequential data compression' by J. Ziv et al, Trans. on Inform. Theory, Vol. IT-23, 1977.

What is claimed is:

1. A data compression apparatus for data compressing at least a first and second digital information signal, each of the at least two digital information signals comprising subsequent samples, the apparatus comprising:

means for receiving the first and second digital information signal;

signal combination means for combining the first and second digital information signal to obtain a composite information signal;

data compression means for data compressing the composite information signal to obtain a data compressed composite information signal;

output means for supplying the data compressed composite information signal, wherein the signal combination means comprises merging means for merging samples of the first and second digital information signal after each other into one datastream to obtain said composite information signal;

said data compression means having a control input for receiving a control signal, the data compression means being adapted to data compress the composite information signal in response to said control signal, control signal generation means being available for generating said control signal, said control signal generation means having an input for receiving said composite information signal and being adapted to generate said control signal in response to said composite information signal.

2. A data compression apparatus as claimed in claim 1, wherein said control signal is representative of a statistical parameter of the composite signal.

3. Apparatus as claimed in claim 1, for data compressing a number of n digital information signals, where $n \leqq 2$, characterized in that the signal combination means are adapted to cyclically merge one sample of each of the n digital information signals after each other into said composite information signal.

4. Apparatus as claimed in claim 1, characterized in that the data compression means comprise lossless compression means.

5. A data compression apparatus for data compressing at least a first and a second digital information signal, each of the at least two digital information signals comprising subsequent samples, the apparatus comprising:

means for receiving the first and second digital information signal;

signal combination means for combining the first and second digital information signal to obtain a composite information signal;

data compression means for data compressing the composite information signal so as to obtain a data compressed composite information signal;

output means for supplying the data compressed composite information signal, wherein the signal combination means comprises merging means for merging samples of the first and second digital information signal after each other into one datastream to obtain said composite information signal;

said data compression means having a control input for receiving a control signal, the data compression means being adapted to data compress the composite information signal in response to said control signal, control signal generation means being available, for generating said control signal, said control signal generation means having an input for receiving said composite information signal and being adapted to generate said control signal in response to said composite information signal;

said data compression means comprising lossless compression means; and

said data compression apparatus further comprising prediction means for carrying out a prediction step on the composite information signal to obtain a residual composite signal, the lossless compression means being adapted to carry out a lossless compression step on the residual composite signal to obtain said data compressed composite information signal.

6. Apparatus as claimed in claim 4, characterized in that the lossless compression means comprise a Huffman type encoder or an arithmetic coder.

7. Transmitter for transmitting a data compressed digital information signal via a transmission medium, wherein the transmitter comprises the data compression apparatus as claimed in claim 1, the transmitter further comprising means for applying the data compressed composite information signal to the transmission medium.

8. Transmitter as claimed in claim 7, wherein the transmitter further comprises error correction encoding means and/or channel encoding means, for error correction encoding and/or channel encoding the data compressed composite information signal prior to applying the data compressed composite information signal to the transmission medium.

9. Transmitter as claimed in claim 7, which is in the form of a recording apparatus for recording the data compressed composite information signal in a track on a record carrier, comprising writing means for writing the data compressed composite information signal on the record carrier.

10. A data expansion apparatus for data expanding a data compressed composite information signal obtained from at least a first and second digital information signal, formed from the merging of samples of the first and second digital information signal after each other, the apparatus comprising:

input means for receiving the data compressed composite information signal;

data expansion means for data expanding the data compressed composite information signal to obtain a data expanded composite information signal;

retrieval means for retrieving a replica of the first and second digital information signal from the data expanded composite information signal;

output means for supplying the replicas of at least the first and second digital information signals, wherein the retrieval means are adapted to retrieve individual samples from the data expanded composite signal to obtain said replicas of the at least first and second digital information signals;

said data expansion means having a control input for receiving a control signal, the data expansion means being adapted to data expand the data compressed

composite information signal in response to said control signal to obtain said data expanded composite information signal, control signal generation means being available, for generating said control signal, said control signal generation means having an input for receiving said data expanded composite information signal and being adapted to generate said control signal in response to said data expanded composite information signal.

11. A data expansion apparatus as claimed in claim **10**, wherein said control signal is representative of a statistical parameter of the data expanded composite signal.

12. Apparatus as claimed in claim **10**, for data expanding a data compressed composite information signal obtained from a number of n digital information signals, where $n \geqq 2$, characterized in that the retrieval means are adapted to cyclically retrieve one sample of each of the n digital information signals after each other from said data expanded composite information signal.

13. Apparatus as claimed in claim **10**, characterized in that the data expansion means comprise lossless expansion means.

14. A data expansion apparatus for data expanding a data compressed composite information signal obtained from at least a first and a second digital information signal, the apparatus comprising:

input means for receiving the data compressed composite information signal;

data expansion means for data expanding the data compressed composite information signal to obtain a data expanded composite information signal;

retrieval means for retrieving a replica of the first and second digital information signal from the data expanded composite information signal;

output means for supplying the replicas of at least the first and second digital information signals, wherein the retrieval means are adapted to retrieve individual samples from the data expanded composite signal to obtain said replicas of the at least first and second digital information signals;

said data expansion means having a control input for receiving a control signal, the data expansion means being adapted to data expand the data compressed composite information signal in response to said control signal to obtain said data expanded composite information signal, control signal generation means being available, for generating said control signal, said control signal generation means having an input for receiving said data expanded composite information signal and being adapted to generate said control signal in response to said data expanded composite information signal;

said data expansion means comprising lossless expansion means; and

said data expansion apparatus further comprising prediction means for carrying out a prediction step on the signal supplied by the lossless expansion means to obtain said data expanded composite information signal.

15. Receiver for receiving a data compressed composite information signal from a transmission medium, wherein the receiver comprises the data expansion apparatus as claimed in claim **10**, the receiver further comprising receiver means for receiving the data compressed composite information signal from the transmission medium.

16. Receiver as claimed in claim **15**, wherein the receiver further comprises channel decoding means and/or error correction means, for channel decoding and/or error correcting the data compressed composite information signal prior to data expanding the data compressed composite information signal.

17. Receiver as claimed in claim **15**, which is in the form of a reproducing apparatus for reproducing the data compressed composite information signal from a track on a record carrier, comprising reading means for reading the data compressed composite information signal from the record carrier.

18. A method of data compressing at least a first and second digital information signal, each of the at least two digital information signals comprising subsequent samples, the method comprising the steps of:

receiving a composite information signal having samples of the first and second digital information signal merged after each other into one datastream;

generating a control signal form said composite information signal;

data compressing the composite information signal in response to said control signal to obtain a data compressed composite information signal; and

supplying the data compressed composite information signal.

19. The method of claim **18**, characterized in that the receiving step comprises the substeps of

receiving the first and second digital information signal,

merging the samples of the first and second digital information signal after each other into one datastream so as to obtain said composite information signal.

20. A method of data expanding a data compressed composite information signal obtained from at least a first and second digital information signal, the method comprising the steps of:

receiving the data compressed composite information signal;

data expanding the data compressed composite information signal in response to a control signal to obtain a data expanded composite information signal, the data expanded composite information signal comprising samples of the first and second digital information signal merged after each other into one datastream; and

generating said control signal from said data expanded composite information signal.

21. The method of claim **20**, further characterized by the steps of

retrieving individual samples from the data expanded composite signal so as to obtain replicas of the at least first and second digital information signals,

supplying the replicas of at least the first and second digital information signals.

22. Record carrier obtained with the transmitter as claimed in claim **9**, comprising the data compressed composite signal recorded in a track on said record carrier.

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